

MAY 1998

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HP-UX

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A BCI PUBLICATION

ENTERPRISE NETWORK MANAGEMENT

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Spring Fervor

Besides turning a young man's fancy, Spring is also the time when the computer industry begins to turn over again. After corporate budgets die back in the winter, computer vendors fertilize the trade press with a prodigious amount of product announcements hoping that the pellets of information will melt into the minds of hardened IT executives desperately confused about the multitude of technologies sprouting like dandelions.

A NEW VIEW ON IT LIFE

HP sprang early with HP's OpenView Universe event. A feel-good garden party put on by HP in Boston was by most accounts a smashing success. Attendance was about four times what HP expected, according to Gordon MacKinney, HP OpenView Marketing Manager.

Although HP OpenView, as an enterprise management framework, remains something of a Dionysian mystery to all but the most overworked network manager, HP has a whole new strategy and a comprehensive vision, says Olivier Helleboid, general manager, HP OpenView Software Division. With projected HP OpenView revenues for 1998 estimated at \$1 billion, Helleboid expects to "create services that IT can deliver to the business."

At the JavaOne show in San Francisco, Scott McNealy's fancy turned from love to loathsome over HP's stance on embedded virtual machine Java, which included a licensing deal with Microsoft to integrate Java programming-language support with its Windows CE operating system and other Microsoft products. According to HP sources, HP's implementation is a clean-room version compliant with published specifications. However, instead of the 2MB original spec, HP's is about 500K. That's more portable for the kind of consumer devices that HP has in mind; after all, HP does know a thing or two about small devices (like calculators, for example).

On the SUNny side of the HP fence, HP announced that it's a full partner with JavaSoft on Java in the enterprise. By focusing its development of Java technology on the needs of server-side Java applications in enterprise resource planning (ERP), supply-chain management, electronic commerce and operating resource management, HP will work with key developers to enhance its Java product offering.

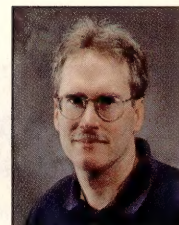
Finally, at the end of April, HP announced that Hitachi, NEC and Stratus (a long-time HP partner) will license HP-UX for IA-64. Each vendor will design their own systems using HP-UX. Although nothing more than a cheerleading session for HP's already existing partners, Bill Russell, vice president and general manager of the Enterprise Systems Group took stock in the fact that it indicated that they are now with HP-UX for the long term.

REAP WHAT YOU SOW

Russell, however, did point out a few interesting facts about the competition for what is expected to be a \$15 billion market for UNIX on IA-64. Although Sun's Solaris has jumped on the IA-64 bandwagon, Russell says, "That's the Intel IA-32 version, not the big endian version that runs on SPARC. IBM is not porting AIX to IA-64. And Compaq is moving IA-64 on Bravo but they claim their strategic platform to be on Alpha." And Sequent has already announced that they are porting Digital UNIX to IA-64.

One thing is for sure: the landscape for ISV's has just begun to shift. With HP and Intel behind the fundamental architecture, ISVs will have a strong incentive to reduce the number of UNIX OSes that they now need to support. According to HP sources, more than 100 leading enterprise ISVs worldwide, including Baan, Informix, Netscape, Oracle, PeopleSoft, SAP and Sybase, already are optimizing applications for HP-UX on IA-64.

IT managers with an investment in HP, take note, the embryonic blossoms of Spring - enterprise management, Java and IA-64, — could lead to many winters of discontent. Find out how your garden grows.



George A. Thompson
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HP NEWS & VIEWS

A T P R E S S

Intel AIMs For Total System Management

Intel, in April, took aim at total enterprise management when they introduced their Application Integration Modules (AIMs), which allow IT managers to integrate servers, desktop and mobile PCs with existing enterprise management solutions.

Today, AIMs support OpenView, CA Unicenter and Tivoli NetView with a remote management framework that links desktop systems pre-loaded with Intel's LANDesk Client Manager or LANDesk Server Manager products. As part of the relationship between Intel and PLATINUM Technology announced earlier this year, integration of these capabilities between the LANDesk family and PLATINUM's ProVision enterprise management product is planned.

AIMs will provide an at-a-glance snapshot of managed PCs from support consoles by way of icons that display warnings and critical alerts. Properly configured PCs can also generate SNMP traps at a pre-defined management console. Also, support personnel can launch either LANDesk Client Manager or Server Manager from their enterprise management console toolbar icon, menu or submap and view and manage the desktop system from the LANDesk GUI.

LANDesk Client Manager and Server Manager support the industry's Wired for Management Initiative and offer Desktop Management Interface (DMI) 2.0 support. Client Manager also supports Windows 95 and NT 4.0. Server Manager supports NT 4.0 and Novell NetWare. AIM modules are available free of charge at www.intel.com/net-work/aim.

CROSSBAR IN HP'S CROSSHAIRS

HP, Data General (Westboro, Mass.) and Axil Computer, Inc. (Concord, Mass.), in an attempt to promote Axil's Adaptive Memory Crossbar architecture as the de-facto standard for eight-way Pentium Pro Windows NT server design, have formed the Crossbar Coalition. The coalition wants to push the benefits of eight-way server technology and Windows NT as a platform for enterprise applications.

Ultimately, they want to show that their platforms, while providing comparable performance to RISC/UNIX and minicomputer products, offer scala-

bility and initial lower cost-of-ownership. Axil claims that their Crossbar technology is the highest performing NT solution for Intel-based servers, is completely standards-based, in full compliance with MPS 1.4 and NT 4.0 API's and runs all NT 4.0 applications from software providers like SAP, Baan, Oracle and Sybase without modification.

HP, for their part, is pushing the rack-mountable LXr Pro8 server, with two to eight Pentium Pro 200MHz CPUs with 1MB cache per processor and up to 8GB SDRAM. It recently posted a best-in-class transaction processing performance (based on the



TPC-C benchmark) beating similarly configured Sun, Digital and Compaq servers by posting 16,257 transactions per minute "C" at a price-performance rating of \$33.67 per transaction per minute.

For more information on the Crossbar Coalition, their Web site is www.crossbar.org; for the LXr Pro8 server check www.hp.com/go/netserver; for more on TPC benchmark testing go to www.tpc.org.

HP REMEMBERS THE LITTLE GUY

HP is putting forth several new products and reseller services that emphasize their commitment to small-to-medium companies.

"We want to enable the channel to provide all IT solutions" to small-to-medium firms, says Eileen O'Brien, HP's marketing manager for NetServers.

Typically, she says, these firms have few or no dedicated IT professionals on their staffs and rely on help from their resellers or VARs.

"Virtual" IT Managers
Brio PC resellers now have access to:
pcANYWHERE's Remote Support Tool that enables them to trouble-shoot problems remotely; new training programs, access to technical information and telephone support dedicated for resellers; and an extended line of HP Value Packs and accessories.

A New NetServer
The new E50 NetServer includes Intel's Pentium II 300 and 333 MHz processors, an Ultra-wide SCSI controller, 7,200 rpm bundled drives, a fully integrated SureStore T41 tape drive, free backup software with a built-in GUI scheduler and TopTools software that enables remote support. NetServer resellers will have access to a special Web-based support site. The E50 price starts at \$2,025.

HP 3000

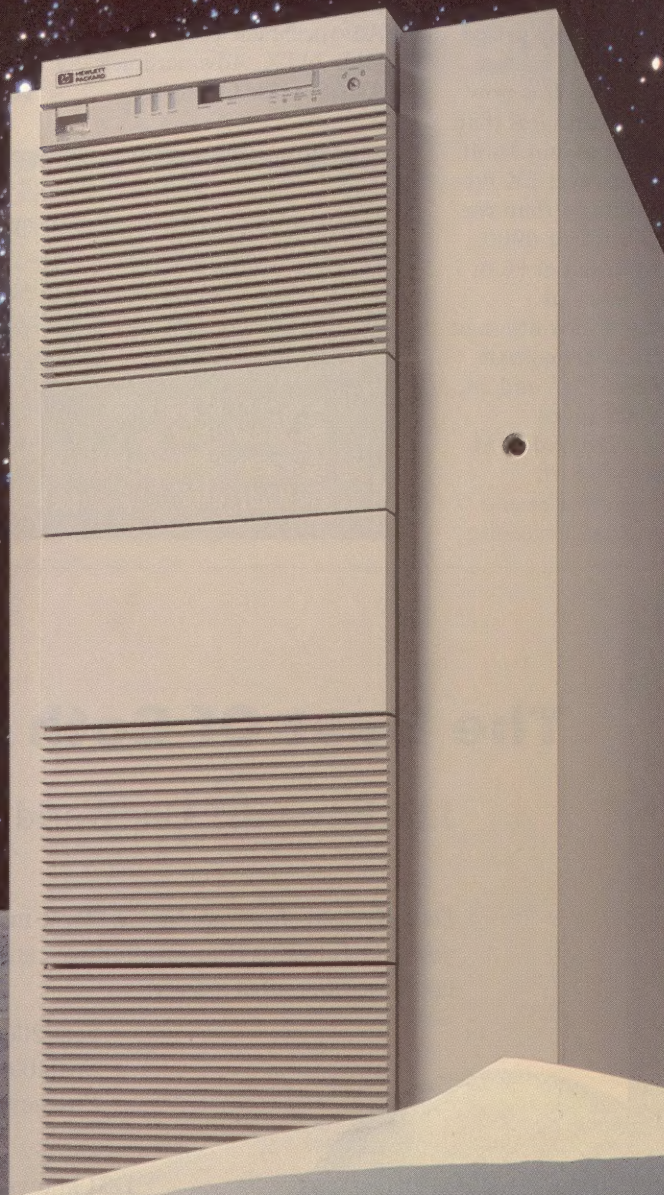
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Small Business, Small Price
HP dropped NetServer prices up to 20 percent, which combined with the recent price reduction of up to 50 percent in memory and storage accessories, make these systems the most competitively priced servers in the PC market. A NetServer LC II is now priced 23 percent less than a Compaq ProLiant 1600, and the NetServer LX Pro is 27 percent less than the Compaq ProLiant 6000.

Low-Cost Ethernet Hubs
HP's new series of Ethernet and Fast Ethernet hubs include the unmanaged 10Base-T 12 and 24, the more advanced 10Base-T 12M and 24M with full SNMP and RMON capabilities and OpenView and Unicenter

TNG integration and the AdvanceStack 100Base-T Hub 24-TX. All HP managed hubs come with AdvanceStack Assistant.

Prices range from \$299 for the 10Base-T Hub-12 to \$1,499 for the AdvanceStack 100Base-T Hub-24TX. AdvanceStack Assistant for OpenView-

UX is available for \$4,999 and for OpenView-NT for \$2,999.

Data Protection

The Colorado 8GB, based on a high-performance IDE controller, is two to three times faster than floppy controller-based tape drives with no proprietary add-in cards. The T41/e is

routed as an all-in-one internal or external that includes Stac Inc.'s Replica Backup software for NT and Netware. The Colorado 8GB sells for \$285, the T41/e (with software) is \$456 for the internal, and \$559 for the external.

HP 9000 V-CLASS BEATS THE SAP OUT OF MAINFRAMES

Simulating a scenario in which transactions were posted for 1 million accounts, HP's 9000 V2250 server running Oracle7 Server 7.3.3 and SAP's BKK Release 3.0 of R/3 3.0 set a new industry standard by completing more than 3.5 million postings per hour with an average CPU utilization of 55 percent.

According to Tim Evans, HP's manager of sales and marketing for Europe, this proves that "traditional mainframe applications can be replaced with HP 9000 Enterprise Servers to provide power, scalability and availability to run business-critical applications."

The database server ran HP-UX 11 with 16GB of memory and the 21 HP 9000 K570 application servers ran HP-UX 10.20 with 2GB memory each. SAP's BKK is their new Bank Current Accounting software. The demonstration was done at March's CeBIT '98 trade show in Hanover, Germany.

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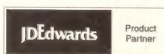
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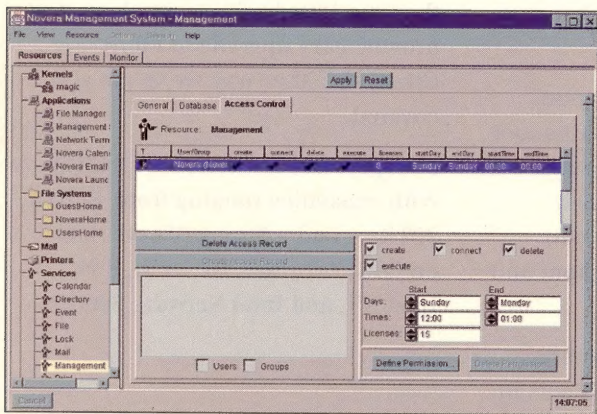
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Load'n Go is the name of a service provided by Home Depot (Atlanta, Ga.) that allows customers to rent a truck at the point-of-sale of their home improvement equipment and ease the transport of their heavier, cumbersome purchases. It's also a good name for the process Home Depot's IT staff uses to develop, manage and distribute the rental contract application in place at their over 500 North American stores.

After evaluating several OLTP products for the development of the application, Home Depot chose Novera Software Inc.'s (Burlington, Mass.) Java Application Server, a chief component of their jBusiness Solutions product family. Novera's products are "built on the premise of

using Java as the application platform for business-critical applications," says David Butler, Novera's vice president of marketing. Butler adds that, with the release of the new Application Server, Novera intends to "deliver an out-of-the-box solution to develop, deploy and manage server-side Java applications."

It includes support for Java and HTML clients, servlet integration and management, a bundled LDAP directory server and automatic HTTP tunneling support and IIOP over SSL via Visigenic SSL software. Applications can be deployed and managed to any device that speaks Java, including thin clients, handhelds, NCs and smart cards.

The Load'n Go application allows a customer to apply for a truck rental at the store. After entering the renter's phone number, a search is performed at the central customer database in Atlanta. The search checks for any past rental activity for that customer, any outstanding balances on their account and previous bad checks written at any Home Depot stores.

The Home Depot network consists of more than 700 HP 9000 servers each running HP-UX 10.2. There is one D270 in each store

and a number of D- and K-class processors in their Atlanta-based corporate IT center. "This application was our first venture into the distributed object world," says Mike Anderson, Home Depot's vice president of IT. "We wanted to stick with CORBA technology without re-inventing the wheel."

The CORBA specification supports clients making requests to objects. The requests consist of an operation, a target object, zero or more parameters and an optional request context. Novera uses CORBA/IIOP to allow client and server to communicate without developer's needing to know anything about protocol or network programming. Novera's jBusiness "already had an infrastructure we would have had to build anyway," says Anderson.

Asked for an overall evaluation of the implementation of the Application Server, Anderson commented on the strength of the back-end structure and not the front-end point-and-click appearance. "It's not the prettiest product, but it really simplified the application under the covers."

*Ken Deats,
Associate Editor*

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Whether you're preparing the killer presentation that propels you to a corner office on the highest floors of the corporation or just making Windows wallpaper of your favorite family pets, the quality and ease-of-use of your scanner could have a graphic impact.

HP's new flatbed ScanJet 5100C scanner purports to make "photo-quality scanning easy and automatic - even for users with no scanning experience." The 5100C replaces the HP 5P, and, while the hardware is similar, there are significant changes in connectivity and software that makes the end-to-end scanning process easier.

"We polled our 5P users," says Mandy Skillern, HP's product manager for ScanJet plotters. "They told

us they wanted quality scans quickly and easily." Skillern points to several enhancements on the scanner that HP claims will do just that.

First, the ScanJet 5100C uses a parallel, not SCSI, connection to the PC. While this connection still provides 90 percent of the speed of the SCSI-connected 5P, ease of installation is enhanced because there are no BIOS setting changes users need to make. "The software install process does the changes for them," says Skillern. "We wanted to give the customers easy connectivity to their PC."

Next, the inclusion of HP's Intelligent Scanning Technology optimizes text and images in a single scan automatically. Comprised of both hardware and software features, this technology performs a page analysis that sets the resolution, bit-depth and file format for each individual page element and optimizes each for a particular application or printer.

Black-and-white logos and drawings are turned into clip art that appear as sharp as the original image with infinite scaling capability. In addition, original page layout, form and content are retained, eliminating the need to reformat for most word processing pack-

ages.

Mike Burianek, a senior consultant for the Holland Technology Group, uses the ScanJet 5100C primarily for building Web pages. Asked to compare the installation with standard SCSI scanners, he said, "It was absolutely flawless. I've done several SCSI installations and this was much easier."

He also touted the scanner's application connectivity. "I shoot the image to an application I pick from their list, save it to a file and add the HTML code to it."

Burianek has also made a home for the scanner in his personal affairs. After scanning and organizing his documents using the included *PageKeeper Lite* from Caere, Burianek found that "I can shred all my bills."

The scanner also comes bundled with HP's *PrecisionScan* for one-step scanning with Optical Character Recognition (OCR) software from Caere's *OmniPage*, *ScanJet Copy Utility* for scanning documents directly to a printer and Adobe's *PhotoDeluxe 2.0* for image editing and publishing.

Ken Deats,
Associate Editor

Data Distribution In GEAR



GEAR UNIX 3.5

- Stores text, large data sets, software, databases, audio/video files and backup information on CD
- Supports RockRidge and ISO-9660 standards
- Runs on HP-UX 9.0x and 10.20; Solaris Sparc 2.5.x and x86 2.5.x; SGI IRIX 6.2; Digital UNIX 4.0; IBM AIX 4.1
- Priced at \$1,799

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Tape, with its huge amounts of data and fast transfer, is an excellent media for backups. Tape, with its variety of formats and sizes, is a lousy media for data distribution. You write to it once, *they* may not be able to read it many times.

Elektroson, Inc. (Campbell, Calif.) wants to diversify data distribution by introducing GEAR UNIX 3.5, recordable CD (CD-R) software that "allows users to ... store text, large data sets, software, databases, audio/video files and backup information on compact disk with full control over the formatting and mastering process."

"CD-R in the UNIX environment is the most efficient way to distribute data

across platforms to different users," says John Battista, general manager of Elektroson. "Tape is effective for backups, but the number of sizes and formats keep it from being effective for data distribution."

David Larsen is a senior systems engineer for HP. He has been using GEAR for creating one-of-a-kind, bootable install media on HP-UX 10.20 workstations. One important distinction between GEAR and other products is its ability to build directories on the CD, a "virtual image" he calls it, that are different from the host. "That lets me put what I want where I want it," he commented. "I don't have to waste space on the host with a duplicate directory image."

Comparing GEAR to competitor *CD Studio* from Young Minds, Inc. (YMI; Redlands Calif.), Larsen noted that the YMI product, which provides an external hardware buffer with the software, does a better job of handling very large data transfers. Although he said that he had never seen it happen, without buffering, a large, high-priority transfer could potentially shut the system down.

"Buffering lets you avoid a system hiccup." Battista noted that YMI is

Elektroson's chief competitor in the HP market. "I believe their product sells for \$6,000 per PC," he says.

GEAR includes support of the RockRidge standard which, in turn, functions concurrently with the ISO-9660 file format. This enables users to read files off the written disc on any other UNIX system with file permissions and ownership intact. Files are also accessible on Windows and Mac systems. "We've also changed our command set to make them more comfortable for UNIX users," added Battista.

GEAR's data integrity features include write-once data protection, post gap writing on all recorders, universal multi-session, full error code handling and device testing and full verification of formatted data. It incorporates enhanced caching and memory use for transfer optimization. Scripting capabilities allow for unattended recording, multiple copy creation and project backup.

"The durability of CD media exceeds anything on the market," says Battista. "It's cheap, and it probably has a 100 year shelf life. We want to fill the data distribution niche."

*Ken Deats,
Associate Editor*

A View On OpenView

Charles T. Hebert

Many industry analysts put the cost of implementing a network and systems management solution at about 5 to 10 times the hardware and software involved. They also claim that 75 to 90 percent of network and systems management projects don't meet expectations — and fail.

In practice, however, the consequences aren't that dire. But there are two issues that these claims bring into sharp focus: hidden costs and inflated expectations.

HIDDEN COSTS

Currently, HP OpenView Network Node Manager (NNM) has both NT and UNIX versions available. A look at the software costs (see chart above) would logically cause you to conclude that the cost of both platforms are about the same. But the key difference is the hardware: a comparable

OpenView HP-UX And NT Cost Comparison			
OpenView NNM	up to 250 nodes	additional 250 nodes	unlimited nodes
HP-UX	\$4,995	\$15,995	—
Windows NT	\$4,995	\$1,995	\$12,995

HP 9000 system for a 100 node network would cost substantially more than a Wintel server.

More important is the effect that hardware improvements have had on the market over the past few years, especially improvements in the Wintel technologies. Affordable and fast NT solutions have forced UNIX hardware and software providers to take NT seriously and adjust their prices accordingly.

About three years ago, when expensive UNIX workstations were the norm, it wasn't unusual to spend

about \$100,000 on a system to monitor your network. For example, I installed the following in 1995 while working at Turner Broadcasting Systems:

HP 700 J210	\$100,000
700MB RAM	
5 GB disk array	
20-inch graphics monitor	
HP-UX, HP OpenView 3.31	\$50,000
Seagate NerveCenter,	
Bay Optivity	

A NEW OPENVIEW UNIVERSE EXPANDS TO FILL THE VOID

With the debut of HP OpenView Universe '98, held in Boston, Mass. in March, HP executives focused on Information Technology Service Management (ITSM), with a theme of "bringing IT service management down to earth." Lew Platt, president, CEO, and chairman of HP, explained that HP has gained new technology in the areas of service management with the acquisition of IT Service Manager from Amsterdam-based Prolin in June 1997, desktop management with Manage X3.0 from NuView, Inc. in November 1997 and most importantly, in Windows NT management with HP OmniBack II 3.0.

Platt says that HP is offering a super-charged version of OpenView that centers on the Service Level Agreement or SLA. SLA is a commitment by IT to deliver a specified level of service. In the HP OpenView approach, the SLA objectives are translated into software known as the OpenView IT Service Manager which is based on Information Technology Infrastructure Library (ITIL) developed by the British Central Computer and Telecommunications Agency.

Paul Mason, vice president of the system management research group at IDC, was equally impressed. "HP is already a credible player in the sense that they're clearly number three in systems management as a whole, but they are well behind IBM/Tivoli and CA. The introduction of the HP OpenView IT Service Manager helps to close [that] gap."

Charles T. Clark is a freelance writer and consultant based in Haverhill, Mass.

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The above didn't include installation, configuration and ongoing support. A staff of four people performed those tasks on that system and others (keep in mind that system was designed to support more than one user). I actually could support 4 to 6 simultaneous users, not an uncommon configuration then or today. So what has changed? You can spell it with two letters — NT. Windows NT has changed the entire systems and network management game.

NT means faster CPUs, larger capacity disk drives *and* declining prices. New Pentium II machines are rivaling UNIX machines in performance and price. So will NT replace UNIX? I think UNIX and NT will be around for many years to come, giv-

ing us, the users of the tools much lower prices and *much* better solutions.

THE FUTURE OF WEB MANAGEMENT

Today, Web network and systems management solutions are primarily Web interfaces into existing tools. HP OpenView NNM 5.01 has a Web interface that will give you access to status and event information from Network Node Manager. But it is slow and resource intensive.

The biggest improvement on the horizon is HP NNM 6.0. Slated to be shipped this summer, NNM 6.0 has a built in Java interface to status and event data. Besides Network Node Manager, Web interfaces are provid-

ed by the following companies:

Product Name	Company Name
Optivity	Bay Network
Netcool	Micromuse
Emanate Agent	SNMP Research
Network Health	Concord Communications

Building a Web interface, however, *isn't Web-based management*. Web-based management is the next generation: Web servers, Web clients and network devices *all working directly together*. At this point, there are a number of different camps in the Web-based management battlefield.

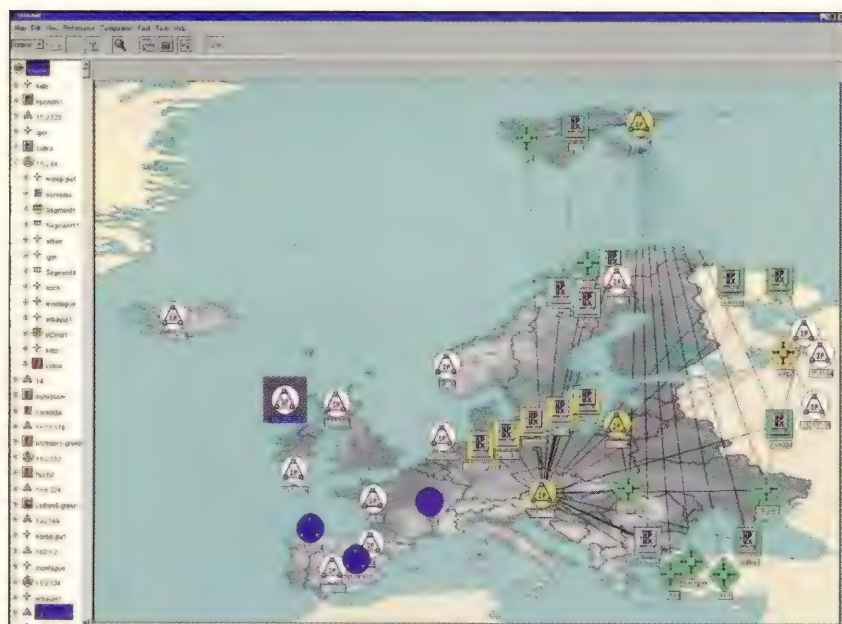
Currently, SNMP is used to query a device's status on the network and allow management systems to gather information from them. SNMP is a mature protocol that has a lot of momentum and effort behind it. Will SNMP be used in Web-based management or will a new protocol arise? The answer and responsibility lies with the router, hub and switch vendors.

Some network hardware vendors are building HTTP servers in those devices - primarily for, but not limited to, configuration. That means you can start obtaining status from these devices via a browser. But that's a small first step. It's one thing to get status from one router and another thing to manage an enterprise with hundreds or thousands of devices.

However, Sun Microsystems would like the industry to go in another direction.

Sun has developed and is supporting a protocol (cum standard) called Java Management API or JMAPI. Sun would like to see all hardware vendors add embedded JMAPI agents in their products. Although Sun doesn't come right out and advertise it, JMAPI is designed to replace SNMP. Still, despite Sun's prophecies about JMAPI that work tradeshow crowds into a frenzy, there aren't any products. But I recently heard that in a Sun office somewhere in California there are JMAPI-enabled coffee pots reporting coffee status to a JMAPI management system. This could be real useful in most IT organizations.

With a standards war brewing,



According to HP, the Java-based HP OpenView NNM will include: the HP OpenView Launcher which allows you to start OpenView Web-based applications; the SNMP Data Explorer which allows you to query your network for data such as traffic routing, address translation, available services on a node and disk space; the Network Browser which provides shared access to NNM's network topology. And with NNM's new event correlation capabilities, an Alarm Browser will enable you to pinpoint the source of network problems.

Developer support for NNM's Web UI includes: application registration files for toolbar and menu item integration; symbol registration files for symbol types and UI integration; user session information (user name, roles, locale information) in both Java and C; new Java-based versions of many OpenView APIs; and opportunities for developers to provide custom views of objects through Java applets (e.g., backplane views of their network devices) in order to extend the management capabilities of NNM.

Enterprise management doesn't
have to be a leap of faith.



Do you know where your enterprise management vendor is taking you? Will you reach your goal or get soaked in the process? Leading industry analyst studies reveal that most major framework implementations fail to deliver the ROI. After years of work, only a small portion of purchased functionality is implemented. There's a better way.

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For more info: www.ovforum.org

WHY WORKLOAD MANAGEMENT?

The shift from host-centric to network-centric computing has placed additional demands on workload management — it can no longer function as a mere extension of its mainframe counterpart. By allowing business policies and priorities to take precedence in distributed computing environments, workload management ensures that computing resources are delivered reliably to those who most need them, when and where they most need them. In both commercial and technical computing, workload management produces dramatically reduced design and development cycles, faster time to market, better finished products, and higher quality of IT service. Consistently, in a broad range of distributed application environments, workload management delivers an ROI measured in months rather than years.

DEFINING WORKLOAD MANAGEMENT

While related to data management and system management, workload management differs from them in key respects. Where data management provides a distributed data platform for all applications, workload management provides a distributed computing platform for all applications. Where system management focuses on hardware and software resources and is used by the operational staff, workload management supports the computing workload of enterprise systems, and is used, directly or indirectly, by the end users who are entrusted with running the business.

In this sense, workload management picks up where system management leaves off. System management ensures that distributed computing resources function properly, where workload management ensures that those computing resources are effectively matched with the requirements of the business-critical processes at the heart of the modern enterprise.

Taken collectively, the core functions of workload

management provide enterprise applications with the availability, performance, reliability, and scalability that advance real-world business objectives.

The most important and fundamental function of workload management is the dynamic scheduling of jobs using the best available computing resources. Depending upon job requirements, scheduling can be based on one or more of the following criteria: resource availability; policies and priorities; calendar workflow and events; workload analysis.

PUTTING THE WORK IN WORKLOAD

Workload analysis supports comprehensive investigation of workload data to assess overall system performance. Workload analysis can be used for capacity planning, system bottleneck removal, system performance tuning, system upgrade planning and future workload performance and requirement forecasting. As workload flows through the network enterprise, and as the installed base of available resources evolves and expands, dynamic monitoring capabilities are needed to track workload processing.

Workload management will play a critical role in enabling distributed heterogeneous computing environments to achieve the robustness and maturity of the legacy mainframe while also delivering the accessibility, cost-effectiveness and openness of distributed computing. Like data management and system management, workload management will dramatically expand the value of distributed computing by enabling enterprise customers to dedicate computing resources to business-critical applications and processes.

Brad Casemore is senior marketing manager at Platform Computing Corporation.

where do HP and Microsoft come in? With another emerging technology that's called "Web Based Enterprise Management" (WBEM). It was launched about two years ago with high hopes, but really, with little more

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than some white papers and hype. This indicates that vendors will be improving on Web interfaces to existing systems for some time to come. For more information on these diverse products, we have built a Web site with links into the JMAPI and the WBEM world at www.wbem.com.

Whether you use a consultant or not, get a professional that knows what they are doing. Don't rely on "on-the-job training" to build and support your management system. Also, if you use a consultant, even if it's a large company, check the consultant's references.

Support costs are also an overlooked expense. Today's management systems are not "install and forget." They need care and nurturing. Whether you use full time staff or consultants, be sure they have adequate training and time to perform their tasks.

Consider this question: If you install HP OpenView Network Node Manager and only look at it after a user calls about a problem, has it lived up to your expectations or your investments?

Charles Hebert is the Program Committee Chair for the OpenView Forum and the president of Southernview Technologies, Inc. (Kennesaw, Ga.).

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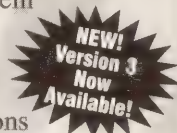
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Joe Eagens and Lee Steuber

Pepsi-Cola (Purchase, N.Y.) is in the business of serving up millions of soft drinks each day. However, some of America's largest companies like Pepsi (\$21 billion), flourish not just in the marketplace, but internally, by serving up best IT practices. That means supporting nearly 30,000 nodes across more than 300 sites. Four years ago, Pepsi chose HP OpenView as the network-management framework to support partitioning and to handle alerts, paging, trouble tickets, and other node-management needs.

The earliest platforms included HP 3000s, but now include HP 9000 client-server systems, a few Sun systems and Windows NT servers running more than 100 enterprise applications (everything from product marketing through distribution and post-sales accounting) for several business groups as well as those used for software development and testing. In order to rise to this "Pepsi challenge," the company's IT department has, over the last two years, implemented some major updates to first



Pepsi's support personnel manage 30,000 nodes at over 300 sites.

its network management and then its system management infrastructures.

For example, in 1996, Pepsi distributed its network management across two data centers in Somers, N.Y. and Winston-Salem, N.C. Pepsi's Systems Management Group decided to automate systems management to facilitate the complexities of problem resolution, both in the data center and within applications.

The group approached this challenge by leveraging the existing HP OpenView platform and adding its IT/Operations system management tools.

THE CHOICE OF A NEW GENERATION

When you anticipate instituting a con-

siderable change to your IT infrastructure and processes, you can't help but ask more than once why you're willing to undertake such a big project. In our case, the conditions that warranted such a big change were clear.

Manual recognition and notification of defects seemed outdated. We were relying on 15,000 pairs of users' eyes to detect problems and notify the Help Desk, who then had to diagnose the problems and contact the right set of people to solve them. We needed a system to automate a significant amount of the problem management. The crisis-driven, unpredictable nature of our support staff's lives needed to be minimized. Call logs show that before IT/Operations, our

support staff was receiving four or five calls every night between 10 p.m. and 6 a.m. Now, there are no calls at all at least two nights of the week. IT/Operations is solving minor problems automatically, and preventing more serious problems from becoming major nightmares that infiltrate all the way out to Pepsi's customers.

IT expertise was wasted on highly repetitive tasks such as fixes. We wanted to extend the software to solve more problems and provide automated actions that enable IT managers to put less staff towards monitoring and support.

Unaffordable application downtime became unacceptable. We saw it as critical to increase application availability because users had become more and more dependent on systems with fewer and fewer manual workarounds.

IT needs were growing fast. Increased numbers of business applications in our client-server infrastructure required more machines. We needed to automate to keep up with system

expansion without growing the staff proportionately. And we've been successful in that goal: over the last two years, we've incurred about 100 percent machine growth, with only 10 to 15 percent staff growth.

MORE BOUNCE TO THE OUNCE

In a fast, dynamic market where IT managers are fortunate to have five weeks advance notice of projects, Pepsi's Systems Management Group needed to plan carefully for a smooth transition towards automated problem resolution. At the time Pepsi chose OpenView, the firm knew that changes were coming. The main criterion for the systems management implementation was to leverage the standard IT framework already implemented on the *network management* side — HP OpenView.

The success of the systems management implementation is highly attributable to the breadth and depth of the implementation team. For example, senior technical staff members such as

Steve Britton, who had worked on Pepsi's network-management implementation, and Gary Ljungquist, who could apply application development expertise towards the infrastructure modification, played key implementation team roles. Britton noted, "by transferring crucial knowledge and experience, the Systems Management Group could design a smooth implementation on HP OpenView, rather than incorporating multiple management platforms in the infrastructure and complicating it."

With a standard framework as a base, the Systems Management Group gives its developers the APIs and commands it needs to write problem management into the applications. IT/Operations performs messaging between the systems and applications and the support staff. Of all the functionality IT/Operations provides, that of highest value to our systems management team is its flexibility in monitoring files and receiving or processing external messages. These capabilities provide faster and more accurate



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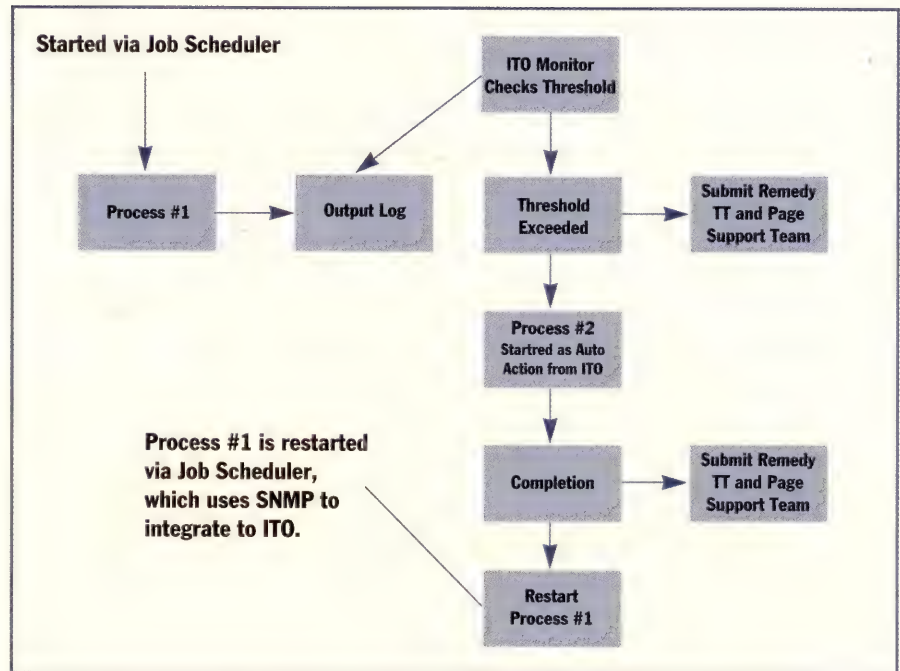
problem resolution. Using monitored logs and automated scripting, it's possible to detect almost any kind of problem and automatically contact the proper support team to handle it.

In addition to reducing problem detection time, we have solved many typical problems and coded in the intelligence to direct IT/Operations in each situation, thus building our experience base into the system configuration. Time spent on deciding who should resolve an issue is a clear waste of an organization's energy, so we use IT/Operations to help reduce the time to resolution by assigning the problem to the correct support team first. Thus, when more serious problems occur, IT/Operations cuts resolution time significantly by routing problems directly to the backline support or Help Desk team(s) that can fix them. The Help Desk now logs fewer issues because more are identified automatically.

According to Pepsi's operations staff, also crucial players on the implementation team, the customized IT/Operations training provided by HP made the biggest impact towards understanding its tremendous potential. HP trainer James Green, who worked closely with the staff to make sure that the information being monitored in IT/Operations matched their needs, underscored the importance of keeping Pepsi's operations staff actively involved in the implementation process in order to show them IT/Operations's credibility in real-life examples. From HP's perspective, product manager Dan Taylor observes, "HP makes this customization a standard part of its support process. This is because no implementation comes to life for the customer until they've had opportunities to tackle applications hands-on."

COST SMALL! LIKED BY ALL!

The IT/Operations user base is now expanding to the application developers who also get support calls. Their applications tie to the error monitoring provided in IT/Operations. This gives us more intelligent applications that can fix themselves.



Flow chart of the process used by an application for monitoring with ITO.

A number of applications extract data and push it to different platforms and systems that need it. These file systems tend to fill quickly. They are monitored automatically, with IT/Operations checking for different levels and sending notices as they reach specified thresholds. When reaching critical levels, Pepsi's system automatically compresses pre-specified files or moves them to temporary locations to prevent applications from shutting down. Previously, these situations usually originated from calls about runaway applications or application crashes in the middle of the night and required the involvement of multiple people to solve.

The system also safeguards critical process daemons that run continuously and, for example, enable people to connect to databases necessary to run truck loading and dispatching operations. In most cases, the system can automatically restart these daemons and/or restart a server in the background within moments after an interruption.

GENERATION NEXT

As a result of Pepsi Cola's extensive management automation, system uptime is no longer the issue it once

was. By leveraging an existing standard framework and implementing the technology through a carefully selected multi-geographic team, Pepsi has directly reduced everyday system management's work levels and provided a good model of best practices.

Continuous improvement is part of the Systems Management Group's cycle for the future. We will be putting automated desktop administration on the HP OpenView platform. The team is also adding such components as electronic software distribution, security, application monitoring and back-end server administration. We have a successful working relationship with HP, and this kind of add-on functionality is in line with what we're looking for as we move towards systems management in the year 2000.

Joe Eagens is the architect for Pepsi's Systems Management Group, and coordinated the entire systems management implementation. Lee Steuber is senior group manager for host systems, with responsibility for servers in both of Pepsi's data centers.

Running Into Potholes...



On Your Road to NT and UNIX Connectivity?

Running into trouble trying to integrate your UNIX and Windows NT network? TotalNET Advanced Server (TAS) software will smooth the rough road ahead.

TAS enables UNIX computers to become NT file, print and application servers. Setting up and using TAS is quick and easy, thanks to intuitive, browser-based installation and graphical configuration wizards. No additional software is necessary on the NT workstation!

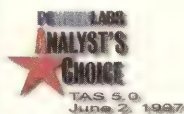
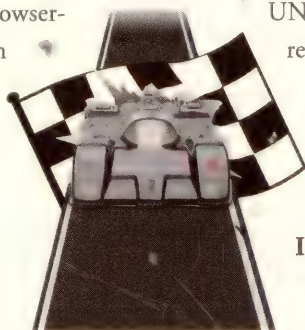
NT File/Print/Application Services: NT users access files and printers residing on UNIX servers using normal NT functions. TAS also enables NT users to access NT applications stored on a UNIX server.

Common File System: Data and applications are stored in a central TAS-based server where NT and UNIX users can easily access the same data.

Transparent to the NT Desktop: The TAS server is seen by NT users as a PC server, so users do not need to know UNIX to access resources on that server. No retraining is involved.

Scalability: TAS provides file/print/application services to thousands of NT and PC workstations.

Is your current solution steering you down the wrong road? Upgrade to TAS and save substantial time and money. Call today for details!



OpenView With A Clear Y2K Conscience

This month, to help OpenView users with Y2K compliance we offer the following chart listing the components of OpenView and their compliant status:

OPENVIEW PRODUCT	CURRENT STATUS	COMPLIANT BY
Desktop Administrator	Y2K-ready (v4.0)	2Q98
Expose	Y2K-ready (4.11)	Today
Extensible SNMP Agent	Testing	3Q98
GlancePlus	Y2K-compliant (vB.10.31)	Today
Internet Service Manager	Y2K-compliant (current)	Today
IT Service Manager	Testing	3Q98 (v5.3)
IT/Administration	Y2K-compliant (v3.0)	Today
IT/Operations	Y2K-compliant (v4.0 with patch PHSS 13939)	Today
ITO Advanced Network Security Extension	Testing	2Q98(v4.03)
ITO Developer's Kit	Y2K-Compliant (v4.0)	Today
ITO Event Correlation Services	Y2K Compliant (v2.0)	Today
ManageX	Testing	2Q98 (v3.5)
MeasureWare Agent	Y2K Compliant (vC.00.01)	Today
NetMetrix Probes	Y2K Ready (current)	3Q98
NetMetrix Software	Y2K Ready (v5.0)	3Q98
Network Node Manager	Y2K Ready (v5.x for NT)	2Q98 (v5.x)
	Y2K Ready (v4.x for HP-UX)	Today
NNM Developer's Kit	Y2K Ready (v4.x)	2Q98 (v5.x)
OmniBack II	Y2K Ready (v2.55)	2Q98 (v3.0)
OmniStorage	Y2K Ready (v2.2)	2Q98 (V2.3)
OpenSpool	Y2K compliant (vB.01.40)	Today
PerfView	Y2K Ready (vC.00.00)	2Q98 (vC.00.04)
Smart Plug-Ins:		
SAP	Y2K Compliant	Today
Baan	Y2K Ready	2Q98
Remedy	Y2K Ready	2Q98
Oracle	Y2K Compliant	Today
Informix	Y2K Compliant	Today
Software Distributor	Testing	2Q98

YEAR 2000 SPECIAL REPORT

HP's Definition Of Y2K Compliance

If a product processes date data, then it is considered to be certifiably Year 2000 compliant if:

- it processes date data accurately from, into and between the twentieth and twenty-first centuries, (including, but not limited to calculating, comparing and sequencing dates),
- including leap year calculations,
- when used in accordance with its product documentation and,
- provided all other products used in combination with the product properly exchange data with it.
- It has successfully passed each test case listed below and the product's test suite permanently incorporates these test cases and conditions:

December 31, 1998 to January 1, 1999: test for beginning and ending a year for year prior to 2000; September 9, 1999 to September 10, 1999: tests related to 9-9-99; February 28, 2000 to February 29, 2000: test for critical transition of 1999 to 2000; February 29, 2000 to March 1, 2000: another Year 2000 leap year test; December 31, 2000 to January 1, 2001: test for transition from 12-31-00 to 1-1-1.

- It has successfully passed a review based on the following checklist: date manipulation routines; called system intrinsics; date comparison routines; date fields on reports; module interfaces internal date data exchanges; data structures for interfaces inbound to each module; data structures for interfaces outbound from each module; product interfaces external date data exchanges; data structures for interfaces inbound to the product; data structures for interfaces outbound from the product; 3rd party utilities or tools used by/with the product; date logic embedded in the JCL 28 28 or run logic of the product.

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Casting For Sweeter Performance

Being a "flyfishing-technogeek-chocoholic" can lead to some interesting occasions. Last month

I took a bank account-depleting trip to Guatemala to catch a sailfish on a fly rod. The problem arose the first day. Realizing I had forgotten to bring chocolate, and this was a long trip (three days), I started to panic. Using some rudimentary Spanish, I was assured by a kitchen hand that she would buy a Hershey's chocolate supply for me when in town the next day.

Running from the fishing boat in excitement the following afternoon, she informed me "no Hershey bars." I inquired about Dove bars. Next day, I found out there were none, and then tried for any kind of chocolate. Things were getting desperate. Finally, just before my nutritional breakdown, she arrived with some unknown type of chocolate and saved my life.

Predictably, this made me think of regular expressions (regexps), and sets the topic for this, the fifth column in the series on regexps.

HIGH-CALORIE RESEARCH

At this point, you might be thinking that as a technogeek, I should have simply used alternation, and asked for (Hersheys|Dove|Nestles) Chocolate. Well, during the research for this month's column I found that there is a substantial performance penalty for using alternation in regexps, and thus was reluctant. For example, the chocolate bar name that I ended up with, if tested against the regexp listed above, would have taken 54 comparisons in

an NFA search engine before failing with no match. This is because every possible case is tested at every possible position. If there is the beginning of a match, that possibility is followed until it succeeds, or if it fails, the search engine must backtrack to the last tested location and resume.

A good proof of this can be done with a simple example of using two different regexps to search for the same string. For example, the regexp `[phnby]uch` and `(plhlnlbly)uch` will match the same strings. To benchmark the difference, these regexps were matched against the silly string `askjvavkbnlkhyuch` 100,000 times in a Perl program. The results were dramatic. Using the single character class regexp (the first one above), it took 6.94 seconds. Using alternation `((plhlnlbly)uch)` it took 77.25 seconds. Now you see my reluctance to using alternation. (For you total Perl freaks, yes, non-backreferencing parentheses would make a big difference. We will look at that later.)

REELING IN AN ENGINE?

As mentioned in the first column in this series (January, 1998), there are three primary search engines used to perform regexp matches. They are DFA, NFA, and the POSIX version of NFA. Performance issues vary from engine to engine. When using tools that use the DFA engine, you need not do your own performance tuning of

regexps, as DFA does its own optimizations. Tools like `awk` and `grep` use a DFA engine.

For NFA engines, let's take a look at one aspect of tuning a regexp. Suppose we put the "most anticipated" character first in a list of alternation. Will it make a difference? Well, in the example above, not really, just a few seconds faster. This is because the location of the match is pretty much in the last few tries. So, let's doctor the data to make the proof. We are looking for "Doctor Yech" in a string, but it might be written a few ways, so we use alternation, and write the following regexp: `(sir|mr|dr) yech`. For a test case, we look in the following string: `sure a mean man dr yech`. With my 100,000 pass loop, this took 35.1 seconds. We can't rewrite this situation using character classes, but what about using the most likely alternate case first? If, for example, we figure that `dr` is used in our data more often than `mr` or `sir`, it should be listed first. In this case the string is static, so it is a best case sample as far as testing goes. But changing the regexp to `(dr|mr|sir) yech` makes a 12 percent increase in speed. As a more realistic example, if you were looking for `error` or `warning` in a file, and expected more errors than warnings, use `error|warning, not warning|error`.

What about parentheses? If you recall from the last column, they are used for tagging a portion of an expression for later backreferencing. In the "Doctor Yech" case above we used them only to control precedence, but Perl did not know that. Therefore it was "remembering" whatever was tagged with the parentheses. Let's rewrite the faster of the two regexps `((dr|mr|sir) yech)` without using any

parentheses: `dr yechlmr yechlsir yech.` Looks worse, looks longer, but it now runs about 23 percent faster. As mentioned above, Perl allows non-backreferenced parentheses, so `(?:drlmrlsir)` Yech runs almost as fast as without parentheses.

POSIX-TIVELY BAFFLING

We mentioned the POSIX NFA regexp engines and dialects of regexps in a few columns. What we neglected to mention in the past is that this is the slowest of all engines, and can easily be completely baffled. In our Regular Expression training class, we often have students write regexps that seem to hang the system. This can be rather easily done to a POSIX NFA engine. In part this is due to the requirement to always provide the longest match, forcing the engine to check all possible cases. If you are testing against a very long string, the numbers of tests can become amazing. In Jeffrey E.F. Friedl's book *Mastering Regular Expressions* (O'Reilly Publishers, 1997), he shows that non-determinism in a regexp can be a real killer.

From his examples, a regexp using a set of nested quantifiers can exponentially increase the number of tests required as you add a single character to the search string. One example given was that of a 12 character test string taking 4096 tests, but a 30 character string taking over a trillion tests, much more time than most people want to wait. A 110 character string took about 325 nonillion tests. (I had to look this one up, that's 325^{30} .) This explains why I still have students sitting at the classroom lab machines from a class back in January. The bottom line is that if you use regexps in programming application code where performance is important, you should study Friedl's book.

SOME GENERALIZATIONS

It seems that generalizations are always easy to poke holes in, but here's one anyway. Whenever you can, use character classes instead of alternation. If you do use alternations, always put the most likely ones first. Remember that it is often faster to use complete strings, instead of parentheses to con-

trol precedence. Parentheses should not be added for readability, only use them when needed, as they are costly. Even the quantifiers are expensive; for example `xxx` is faster than `x{3}`.

Sometimes it is best to use multiple expressions rather than trying to write a complex expression to handle all possible cases. Not only does it save programming time, it can save run-time.

Next column, we will take a look at ways to compile a regexp when it is going to be used multiple times, which can also speed things up. And when you eat a pound of chocolate a day, fast is good!!!

Fred may seem like he's fishing for responses. Compare fishing, chocolate and regexp tall-tales with him at fred-erm@famece.com.

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Scripting Near Perfect NT

believe a decent scripting language is essential for good system management. The primary purpose of

scripts is to provide a simple way to automate repetitive tasks. While a graphical user interface is great for simplifying the complexity of a system, it can add more obstacles between you and the data you need.

For instance, if you want to determine what the logon script is for a particular user, here's what you must do: Click the Start button. Go to Programs. Go to Administrative Tools. Go to User Manager. Select the user, hit enter (or click File, Properties) and click the Profile button.

This seven step process can go pretty quickly if you're only checking one user and there aren't a lot of user accounts. But what if you're checking 100 users? A scripting language can provide you with tools to automate these kinds of functions.

XLNT, DUDE

XLNT (eXtended Language for Window NT) is a scripting tool by Advanced Systems Concepts Inc. (www.advsyscon.com; Hoboken, N.J.). It has powerful features that allow you to extract system data from your machines and process it in just about any way you can imagine. Some products for NT strive to provide compatibility with UNIX scripting tools and fail to provide NT specific functionality. For instance, there is no registry in UNIX, so a product providing UNIX compatible scripting is not compelled to provide commands to query and

change the registry.

XLNT provides a text-based command processing environment. It's based on DCL, the command language for Digital's OpenVMS. The commands are straightforward and should be intuitive to DOS/NT users. For instance, the *directory* command gives a directory list just like in CMD.EXE, NT's native command processor. Of course the XLNT version is more powerful. For instance, issuing *dir /since=today /exclude=*.tmp* will display those files dated with the same date as the system that do not have the .tmp extension. Similar command switches are available for other basic commands such as *copy*, *type* and *delete*.

XLNT handles string, numeric and Boolean variables very well. XLNT refers to variables as symbols. Performing calculations is quite simple. The statement $a = b + c$ is perfectly valid and can be used for numeric addition or string concatenation, depending on your variable types. A set of standard symbols is provided which refer to system variables such as the computer name, login directory and process id. For instance, *copy *.bat \$login* copies all batch files to the users login directory.

A LEXICON OF LEXICALS

In addition to the built-in symbols, XLNT also has lexical functions that can return a great deal of information

about your system. For instance, the command *write \$stdout f\$getdvi("C:", freebytes)* will display the amount of unused storage on the C: drive. Lexicals are available to return information about storage devices (*f\$getdvi*), system information such as operating system and version and processor (*f\$getsysi*) and job process information such as number of thread or pagefaults (*f\$getjpi*).

A particularly clever lexical called *f\$enummachine* will return all the computer names in a particular domain. You can use this in conjunction with other lexicals to return information about every machine in the domain. For instance, you might want to write a script that checks the current service pack of every NT machine on your network.

STRING ALONG

Another area where XLNT shines is string handling. Good string handling is conspicuously absent from NT at the command level. XLNT provides a set of string handling functions such as *f\$locate*, which finds the occurrence of a substring within a string, and *f\$extract*, which extracts a substring to another symbol. Using these functions and the *open* and *read* statements, you can perform virtually any kind of text analysis.

All this functionality is available at the XLNT command prompt, but is most useful within script files. Any XLNT command can be included in a script.

For a good example of XLNT Script, read Ryan's article @www.hppro.com.

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APPLICATIONS DEVELOPMENT

Hummingbird's PowerView for Informatica PowerMart

Hummingbird Communications has released PowerView, a metadata query and reporting utility for Informatica PowerMart. PowerView allows database administrators and power users to analyze the underlying structure and composition of datamarts. Metadata helps users and administrators understand the information stored in their data marts or data warehouse. Business metadata is made available to Hummingbird GQL (formerly Andyne GQL) users through Informatica's MX Architecture, which enables information from the PowerMart repository to be piped directly into GQL data models.

►Contact Hummingbird Communications, North York, ONT, CAN at (416) 496-2200

EZ Macros 3.0

American Systems announces the release of EZ Macros 3.0, a Windows 95/NT keyboard and mouse macro program. EZ Macros can launch programs and remember and play back keystrokes.

EZ Macros lets users create macros manually or by recording their keystrokes and mouse movements. The speed of macro playback can be adjusted to optimize performance. EZ Macros lets you create "global" macros that can be used with all your programs, as well as "program-specific" macros that work with particular programs.

►Contact American Systems, FortWorth, TX at 817-485-6547

DATA WAREHOUSING

Ardent Software's O2Search

O2Search is the new search engine embedded in Ardent's O2System ODBMS. It allows for full text indexing from any object stored in an O2 database, and can be used in any O2 application or directly in any Object Query Language. Created from the Verity SEARCH '97 product, O2Search is an add-on module to the Ardent database.

Ardent offers O2Search on Windows NT and major UNIX platforms at an introductory price of \$3,000 per run time license.

►Contact Ardent Software, Westboro, MA at (800) 624-2339

DESKTOPS AND SERVERS

New NT Workstations From NeTPower

NeTPower has upgraded their SYMETRA and CALISTO NT workstations to include Intel's new 333MHz Pentium II processor. The workstations are designed for graphics and power-intensive applications like CAD and financial modeling.

The new SYMETRA3, with a dual-processor capable, 333MHz Pentium II, 64MB SDRAM, TRUEfx graphics board and a 2GB Ultra Wide SCSI-3 drive sells for \$4,680. The CALISTO3 is priced at \$3,700 for a 333MHz Pentium II processor, 64MB SDRAM, TRUEfx2 graphics board and a 3GB ULTRA IDE disk drive.

►Contact NeTPower, Sunnyvale, CA at (408) 522-9999

DISASTER RECOVERY AND SECURITY

Security Dynamics Announces SecurSight

SecurSight products, including SecurID authentication and the SecurSight Desktop, Manager, Agents and Agent Toolkit, integrate ACE/Server security software with public key cryptography and digital security technology from RSA Data Security, DynaSoft AB and VeriSign Inc.

SecurSight offers secure remote access via dial-up lines or virtual private networks, secure network access for LANs, secure application access for single sign-on, intranet, extranet and email security and platform security for desktop and UNIX hosts.

►Contact Security Dynamics Technologies, Inc., Bedford, MA at (800) SECURID

E-COMMERCE

Cambar Launches CONTROL II Net

Cambar Software has announced the addition of the CONTROL II Net module to its CONTROL II order processing software system. CONTROL II Net enables customers of a distributor or manufacturer using Cambar's CONTROL II system to access the user's Web site and perform a number of functions in real-time mode. Features include: the ability to look up products using 5 different search methods; view clear photos of products; and check inventory, prices, promotions and new products in real-time mode.

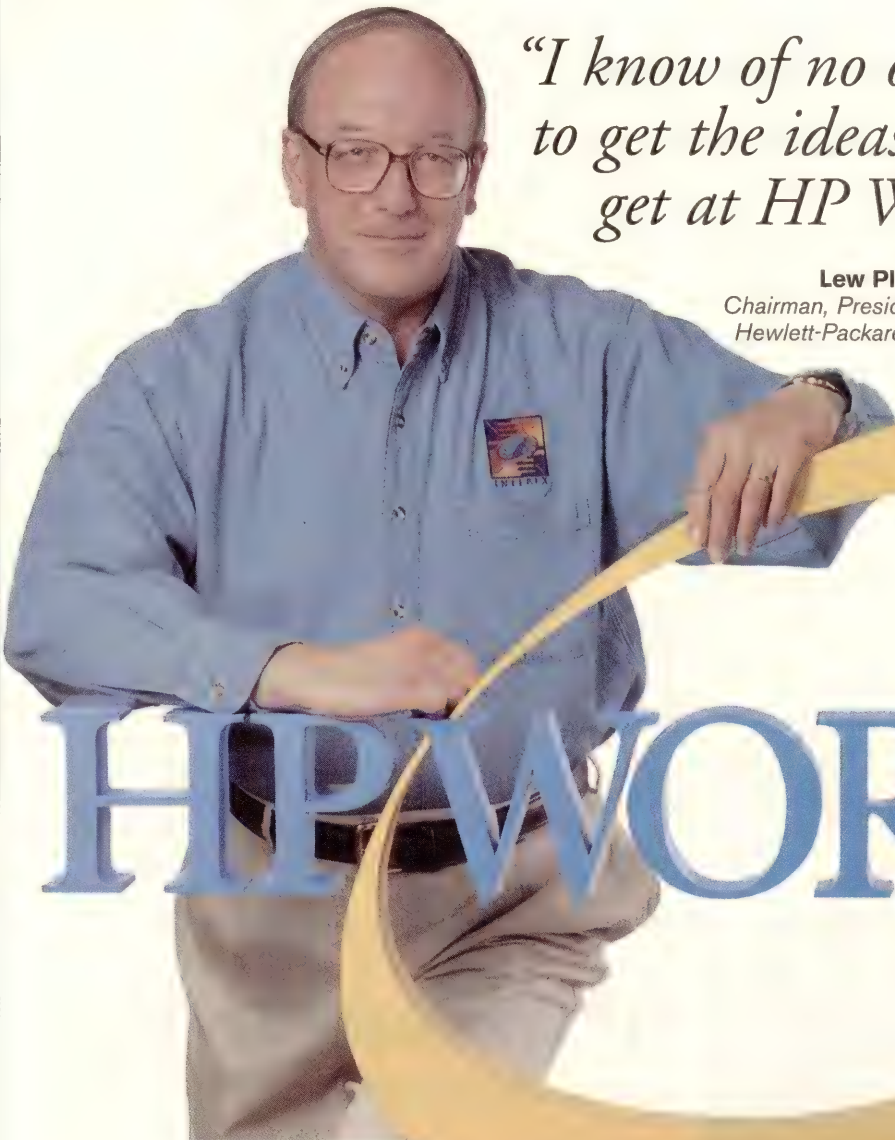
Pricing for the CONTROL II Net module begins at \$80,000. CONTROL II runs on multiple mainframe and UNIX platforms, including the IBM RS6000 and HP 9000. Pricing for CONTROL II starts at \$150,000.

►Contact Cambar Software, Inc., Charleston, SC, at (803) 747-4900

MESSAGING AND E-MAIL

Interstar Technologies Releases Lightning FAX 5.

Lightning FAX 5, client-server fax solution, is designed for the Windows NT or the AIX UNIX environment. Clients are available for Windows 95, Windows NT and Java. Lightning FAX 5 is natively written for NT and IBM AIX server platforms respectively. Interstar Technologies has taken full advantage of AIX and NT's 32 bit, multi-tasking, multi-threading environment. Lightning FAX 5's combines



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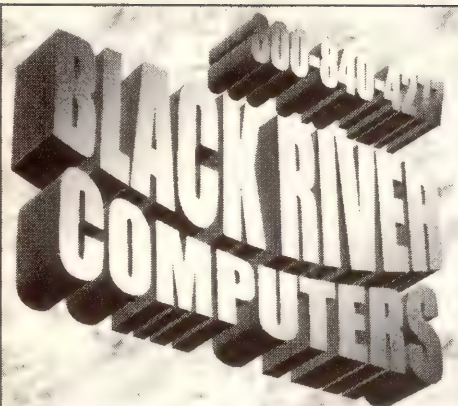
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►Contact Interstar Technologies, Inc., Montreal, Quebec, Canada at (514) 766-1668

MULTIMEDIA

New 19-Inch Monitor From CTX

CTX International announced the VL950 19-inch monitor. It features an 18-inch viewing area, 0.26mm dot pitch, vertical scan of 50-160Hz and a bandwidth of 135 MHz and a maximum resolution of 1600x1200 @ 75 Hz.

With a flat-square tube, the VL950 offers on-screen display control and is VESA DPMS, amd MPR-II low-emission compliant. It is Plug & Play ready and conforms to the VESA DDC 1/2B standard.

The suggested retail price is \$899.

►Contact CTX International, Inc., City of Industry, CA. At (800) 888-2120.

NETWORK INTEGRATION

Artisoft Ships Modemshare 32

Artisoft, Inc. is shipping ModemShare 32, which enables all networked PCs -- Windows NT 4.0 through DOS -- to share a single phone line and modem. ModemShare supports both Class 1 and Class 2 modems and gives Microsoft, Novell and Artisoft networks access to the Internet, online services and desktop faxing, while spending on modems and phone lines is kept to a minimum.

ModemShare 32 starts at \$179 for the one-modem version. It is available through all Artisoft distribution channels in versions for 1, 2, 4, 8 and 32 modems.

►Contact Artisoft, Inc., Tucson, AZ at (520)-670-7100

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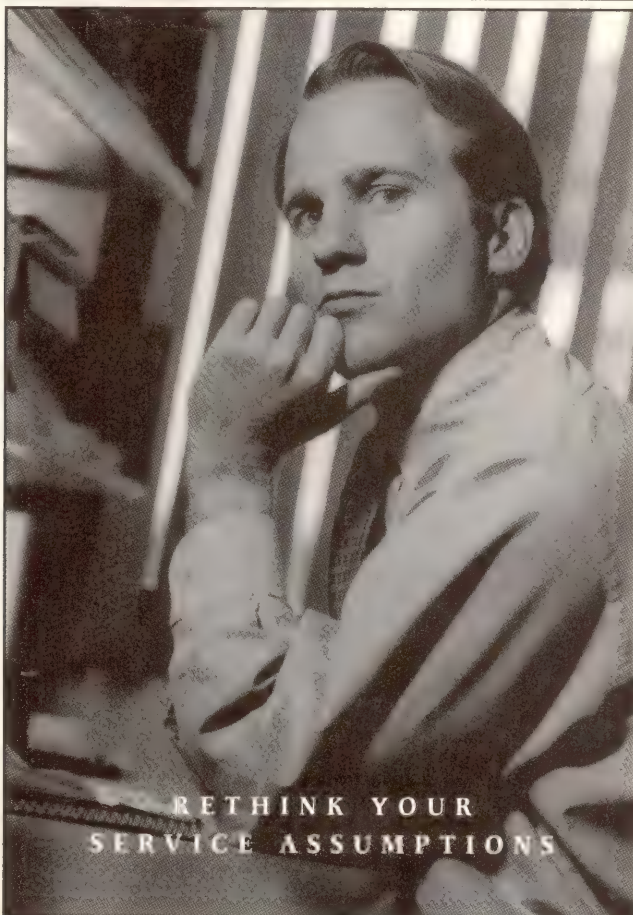
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►Contact EMASS, Inc., Englewood, CO at (800) OK-EMASS

Optima Announces CD-Central; A CD Tower Emulator

Optima Technology Corporation announced the launch of CD-Central. CD-Central utilizes hard disk and software technology to emulate a CD Tower Server on any NetWare (NCP) or Windows (SMB) 10/100 BaseT or 4/16 Token Ring network. According to Optima Technology, the result is enhanced speed, reliability, price performance and a more

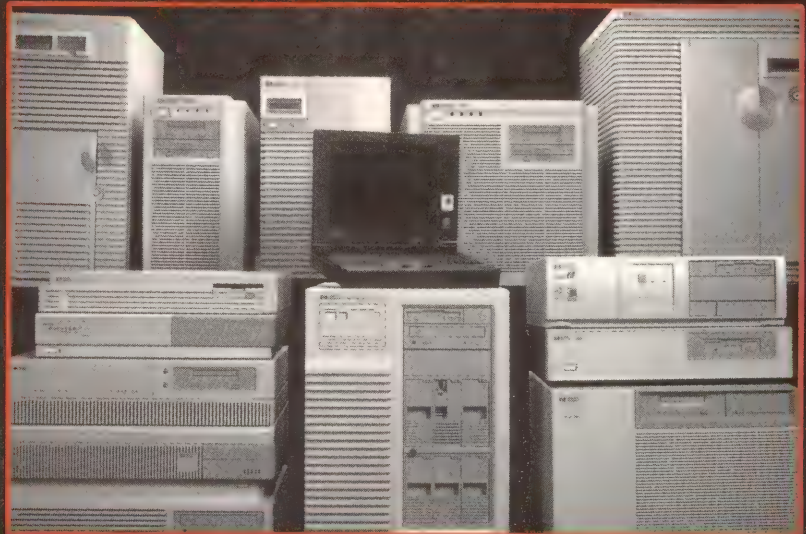
compact footprint.

CD-Central comes with at least one 24X CD-ROM drive, up to thirteen 9 gigabyte hard drives and customizable controller software. Each hard drive can store and serve about 12 or more CDs. Pricing for CD-Central start at about \$4,500.

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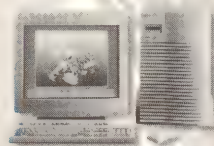
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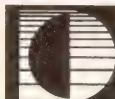


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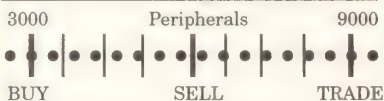
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Expand Your Virtual Horizons

*But first make sure
it's legal expansion.*

Lawyers. They're everywhere. Turn over an Internet rock and hundreds of them e-squirm out. This month, we looked for good legal references on the 'Net. If you or your firm needs the services of one, you know that searching for the right one can be as frustrating as finding an honest person at a criminal convention.

It's equally hard to find a true interactive legal resource on the Web. After all, it's hard to bill for time over e-mail. Most of these sites offer good references to legal theory, documents and precedents.

There's so many of them it's difficult to know where to start. Our personal favorite site to offer as a starting point is www.primenet.com/~rus-selb/Lawyer.html.

Check it out and you'll see why. Don't sue over carpal Tunnel Syndrome.

*Link to these sites at
www.hhpro.com.*

If you work for a large company in a limited market (or maybe Microsoft), anti-trust legislation may be of some concern to you. This site offers a *Merger Simulator* to see if your grandiose plans to merge offend any legal sensibilities. Also, you'll find info on price fixing and vertical restraints.

AN ON-LINE RESOURCE LINKING
ECONOMIC RESEARCH, POLICY AND CASES

The good folks at the law offices of Philip B. Kerr sponsor the World Wide Legal Information Association (WWLIA). It purports to make legal information available around the world, which, judging from the menu bar, that at least covers the countries of the former British Commonwealth. And, who says lawyers don't have a sense of humor.

What would a legal search be without getting at least one government agency on the case? The U.S. Department of Labor offers employment law assistance for workers and small businesses. It is comprised of a series of individual advisors designed to help you understand your rights and responsibilities as an employee or employer.

For high-tech legal concerns, you may want to browse the Michigan Telecommunications & Technology Law Review. According to their index page, MTTLR was one of the first law journals to "champion the use of interactive media to promote informed discourse about the interrelated legal, social, business and public policy issues raised by emerging technologies." They also include a link to the Lexis-Nexis legal publishers home page.

Finally, if you're just interested in who's doing what to whom, and what they got for doing it, dial up Court TV Online. With a properly configured PC, you can watch live broadcast of the TV version, or listen in on a police scanner from one of many large U.S. cities.

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THINGS CHANGE

Not so long ago, before corporate America embraced change as a positive business model, change was considered a negative factor. Success was determined by how much you could protect yourself from change. No news, as the saying goes, was good news. After all, a change in thinking or a change in plans incurred too many risks, risks that might lead to failure. And failure doesn't pay.

But now, the business model has, well, changed. Rather than insulate itself from change, it's change for change's sake in the cubicles of corporate America. How many times have you heard these lines: "Change is inevitable." "Change is good." And my personal favorite: "The only constant is change." And if your corporate management muse is Tom Peters, you can hire him to encourage your rank-and-file to not only like change - but enjoy failure. Maybe failure does pay after all.

But in a world swept up in shifting here and shifting there, reliability is an attractive characteristic. Within the HP community, no one exhibits that characteristic better than the steadfast users of the HP 3000. And it shows, not only in the enthusiasm of the user community, but on the balance sheet. Having survived more close calls than MacGyver in its first twenty-five years, the HP 3000 is now ready to survive beyond the millennium.

For example, the HP 3000's performance has kept pace (see chart below). And, now with the use of 64-bit PA-8x00 CPUs, performance is no longer an issue. While HP-UX and Windows NT are the platforms du jour, the HP 3000 quietly maintains its dignity (and the dignity of its users) by being the essence of the HP Way - a well-engineered, reliable product. And it's precisely that reliability that remains its most significant attribute.

Although UNIX and Wintel platforms are initially less expensive, they are also less reliable and less secure. But after the bright lights of market hype dim, IT managers often discover that the costs quickly escalate. Change does have its price.

George A. Thompson

Relative HP 3000 Performance

System	Relative Performance to Series 37	System	Relative Performance to Series 37	System	Relative Performance to Series 37
Series 30,33	.05	917LX	10.0	979KS/300	132.0
Series III	0.6	927LX	10.0	979KS/400	167.0
Series 37, 37XE	0.6	937	10.0	Corporate Server 990	28.0
Micro 3000 RX	1.3	947	10.0	Corporate Server 991	33.0
Micro 3000 LX, GX	1.3	957	16.0	Corporate Server 992	35.0
Series 39, 40, 44	1.0	967	20.0	Corporate Server 992/200	60.0
Series 42, 48	1.3	977	26.0	Corporate Server 992/300	81.0
Series 42XP, 52, 58	1.7	987	32.0	Corporate Server 992/400	100.0
Series 64	3.2	987/150	45.0	Corporate Server 995	42.0
Series 68	4.0	987/200	60.0	Corporate Server 995/200	71.0
Series 70	4.4	918	10.0	Corporate Server 995/300	96.0
920	1.9	928	14.0	Corporate Server 995/400	118.0
922	3.2	968	21.0	Corporate Server 995/500	139.0
932	5.0	978	25.0	Corporate Server 995/600	160.0
948	10.7	988	39.0	Corporate Server 995/700	180.0
958	13.3	939KS/100	28.0	Corporate Server 995/800	200.0
925	2.9	959KS/100	35.0	Corporate Server 996	48.0
935	5.9	959KS/200	62.0	Corporate Server 996/200	80.0
949	11.7	959KS/300	86.0	Corporate Server 996/300	107.0
950	6.5	959KS/400	110.0	Corporate Server 996/400	130.0
955	10.0	969KS/100	40.0	Corporate Server 996/500	152.0
960	14.7	969KS/200	71.0	Corporate Server 996/600	173.0
980/100	22.0	969KS/300	99.0	Corporate Server 996/700	192.0
980/200	37.0	969KS/400	126.0	Corporate Server 996/800	210.0
980/300	49.0	979KS/100	56.0		
980/400	59.0	979KS/200	97.0		

Source: Computech's Insight HP (January 1998)

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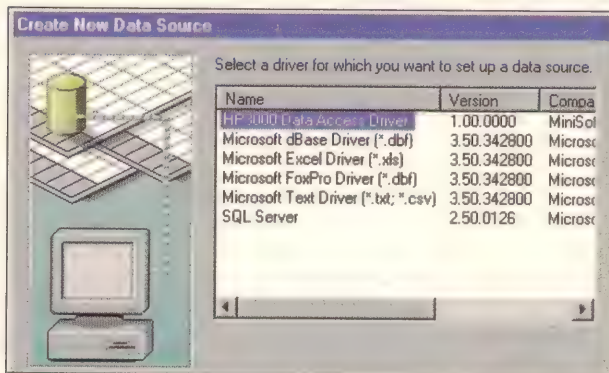
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MiniSoft Inc. has announced an update to ODBC/32, their 32-bit driver which allows HP 3000 data to be accessed by 32-bit ODBC-compliant client soft-

ware.

New features include: Support for TurboImage B-Tree indexes; enhanced support for TPI keys - searching using all relational operators; GROUP BY, AVG, COUNT, MIN, MAX and SUM aggregate clauses; expressions in SELECT list and ORDER BY clause; and SQL foreign keys support.

PowerCrew, a Malvern Pa.-based provider of accounting has integrated Crystal Reports with ODBC/32 to provide canned reports to their clients. "Until now, TurboImage databases were invisible to PC users," says Paul Heinmiller, a senior

technical consultant with the firm. "These were strictly dumb terminal applications."

MiniSoft's driver gives direct native access to Image and TurboImage databases, eliminating the need to use Allbase or Image/SQL. "We tried HP's drivers from MPE 5.0," says Heinmiller. "But we didn't like going through Allbase which was required."

"One change we would like to see, is the inclusion of a GUI front end." That, according to Heinmiller, would allow clients to write to the database from a PC and do away with the need for terminal access.

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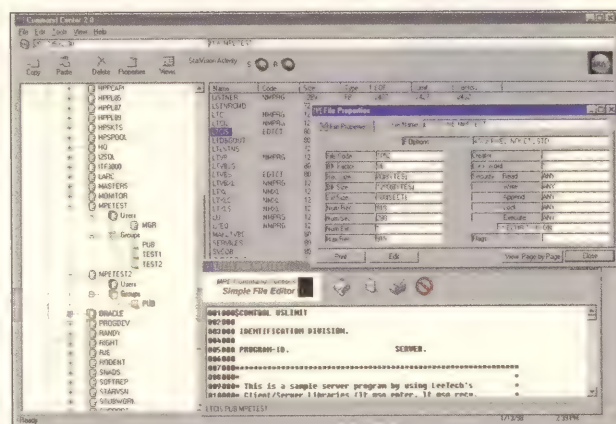
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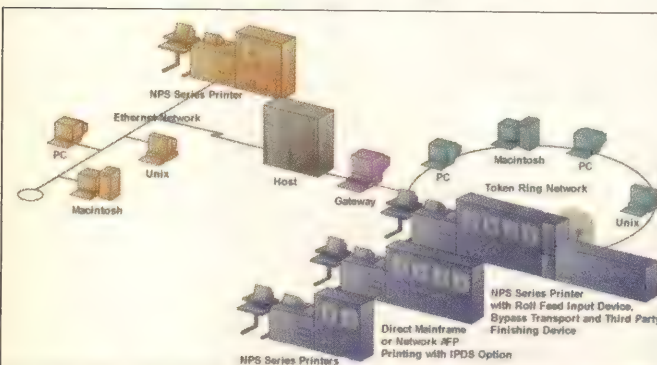
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position the DocuPrint NPS as a replacement for the HP 2680 printer.

PRINTPATH allows the HP 3000 to spool to Xerox printers over a TCP/IP network connection. Its programmable banners and printer environment control allow easy access to the Xerox printer features. It supports all known network printer interfaces as well as print job exchange with most host systems, servers or clients via industry standard LPD/LPR protocols.

PRINTPATH sells for \$1,200 for the first copy and \$600 for each copy thereafter.

PRINTPATH

RAC Consulting,
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Olympia, WA. 98502 USA
tel: (360) 357-9572
fax: (360) 352-8453

RAC Consulting's network printing solution for the HP 3000, PRINTPATH, now supports the Xerox DocuPrint NPS Network Printers. In addition, RAC Consulting announced its appointment

PEOPLE ARE TALKING...



EUGENE TCHANA

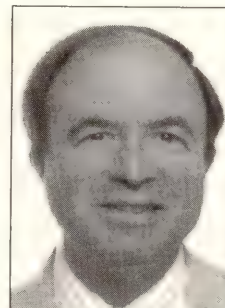
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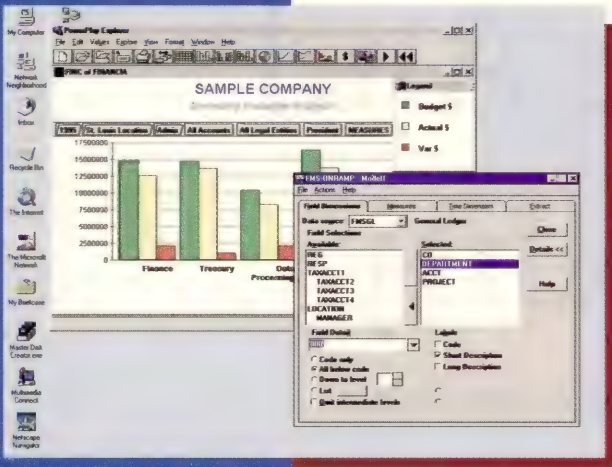
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KEN DEATS

Sometimes, familiarity breeds respect. Respect can make you look for ways to hold on to a useful tool that you have a lot of time and effort invested in even though you may have started to outgrow it.

Forsythe Solutions Group Inc. (Skokie, Ill.) has been one of HP's top resellers for the past few years. They are intimately familiar with the strengths of the HP 3000 server and the advantages of running critical applications on it. That's why, when their parent company, Forsythe Technology, Inc. started to outgrow their accounting system, they placed primary importance on sticking with the HP 3000 that has been an office application server stalwart for so long.

"We definitely wanted to get more bang out of the 3000," says Mitch Germaine, Forsythe's vice president of Information Systems. "We had lots of customization on it, and we want to still run all our back-end systems on it."

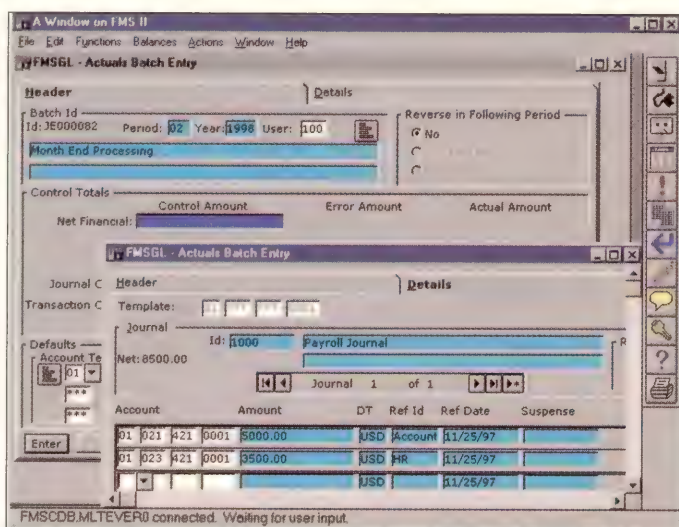
Forsythe provides technology services and equipment leasing to more than 1,200 customers throughout the U.S.

They have annual revenue of \$250 million and 325 employees. In addition to HP, they maintain partnerships with other industry icons including Compaq, Cisco and EMC. Their accounting network consists of one HP 3000 Series 987 running MPE/iX 5.5 with TurboImage and 10 to 15 PC users running WRQ's Reflection emulation software.

The software guts of the system was HP Financials G/L package.

As their business continued to grow, so did their concerns about the long-term growth of their accounting system. "Our company was growing at such a fast rate, we needed a system that was scalable enough to grow into the future," Germaine added. "We realized we needed a new accounting system to improve efficiency and bring us past 2000."

Their search started with a small set of criteria. Any new system had to be compatible with their HP 3000, Y2K compliant, based on a client-server architecture, easier to use and customizable. In the case of the old, completely command-driven software they had been using, familiarity bred contempt. Forsythe users



HP 3000

Some things are just
built to last.

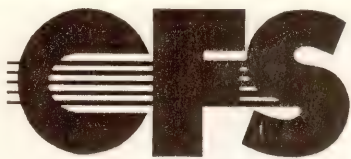
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HP 3000 SOLUTIONS

were tired of accounting for all the cryptic commands they needed to remember to do their daily entries.

After reviewing several major packages on the market that included Windows NT and full client-server applications (these were ruled out because, with the edict that remaining with the 3000 was of prime importance, Germaine did not want to subject his users to multiple front-ends and emulation products) Forsythe selected FMS II from Mitchell Humphrey & Co. (St. Louis, Mo.).

Having had a strategic partnership with them for several years, Forsythe was intimately familiar with the talents the Mitchell Humphrey sales team brought to the table. "Their sales staff are financial people talking financials," says Germaine. "They are cognizant of both IT needs and financial needs." Forsythe's corporate controller, Bill Decker, added that the Mitchell Humphrey sales team answered all his questions in the preliminary, pre-sales phase of the project.

For Decker, ease-of-use and integration to the rest of Forsythe's suite of office software were two primary attractions of FMS II. He explained that with an increase in their full-time and free-lance sales force from 100 to 300, budgeting was becoming a huge headache. "FMS II lets us import and export from Excel and Lotus," he explains. "So our users can maintain their own spreadsheets at their desks and integrate them with the system."

While not a fully client-server product, Mitchell Humphrey included what Germaine referred to as "a plug-in for Reflections" that acts as a front-end to the application suite. Decker added that FMS II's easier

menu-driven approach has greatly lessened his training burden and eliminated the need for Post-it note command reminders that cropped up periodically on users workstations.

Installation of the system started in the second quarter of 1997. It included FMS II modules General Ledger, Accounts Payable, Budgeting and Financial Planning, Report Writer,

Custom Table Manager, and FMS-ONRAMP and FMS-EXEC (PC-based tools for multidimensional analysis and reporting.) The implementation, according to Germaine, was very smooth. Their team "provided our users...with excellent knowledge about the system," he says. "The support team helped us fine tune the software to fit our needs."

FMS II has had an impact on report-

ing and the dissemination of data across the Forsythe enterprise. "We can give our executives bar and pie charts that give them a 50,000 foot view, or they can drill down to a 10,000 foot view, a 5,000 foot view to a 1 inch view if they want," says Germaine. "There's no need to deal with reams of paper where a pie chart would do."

Asked if it is possible to quantify what dollar savings, if any, have been realized by installing FMS II, Germaine stated that it allowed Forsythe to "extend the life of the 3000," eliminating the expense of additional hardware. But, for Forsythe users, the advantages to the new system were less quantifiable but no less real. "We needed a customizable system that can adapt as we grow and change," says Germaine. "Mitchell Humphrey and FMS II's design provided all that."

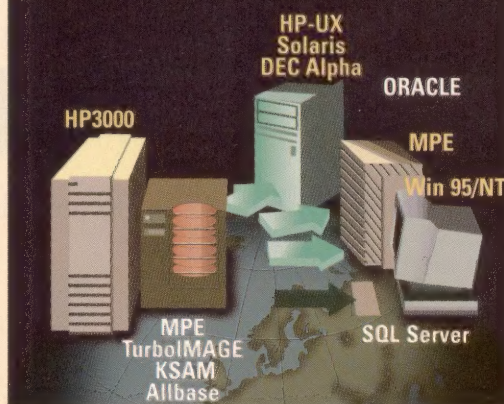
"Our company was growing at such a fast rate, we needed a system that was scalable enough to grow into the future. We realized we needed a new accounting system to improve efficiency and bring us past 2000."

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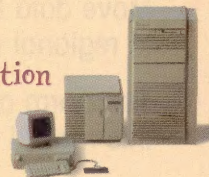
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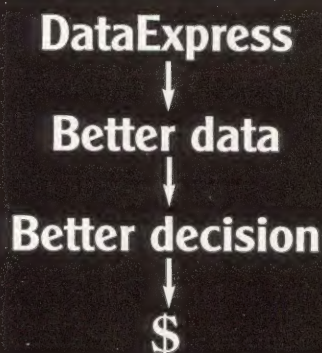
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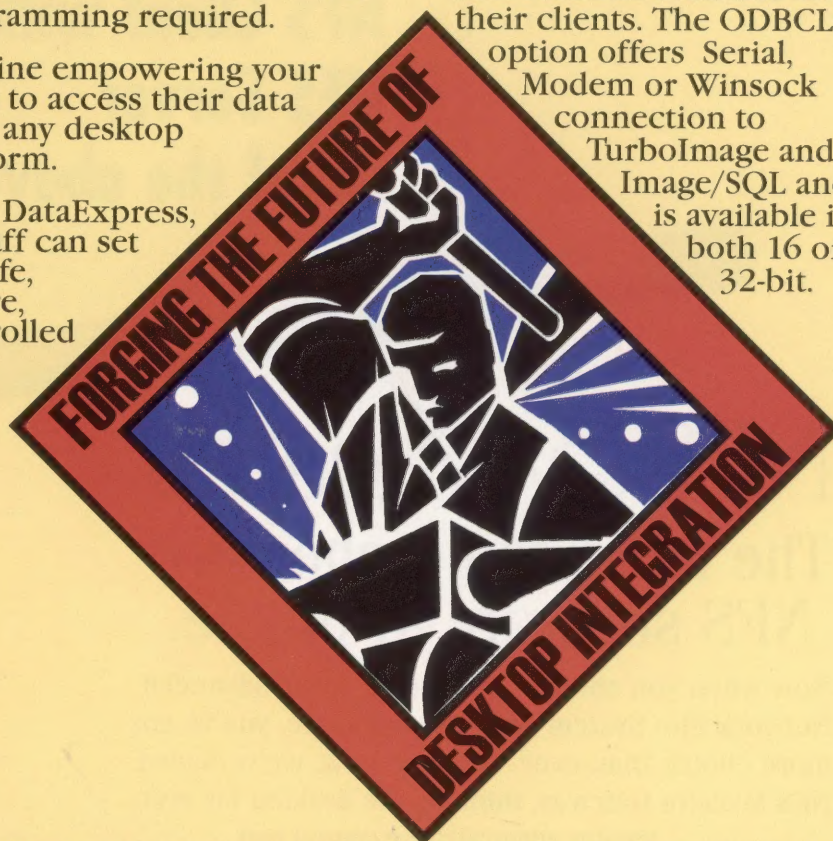
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